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*           Easy Scan                *
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*       The Image Scanner            *
*       For Dot Matrix Printers      *
*       And Atari XL/XE Computers    *
*       (128K Ram required)          *
*                                     *
*       Copyright ©1987              *
*                                     *
*       Sector One Computers          *
*       and                          *
*       Innovative Concepts (I.C.)    *
*                                     *
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Copyright notice - Both the Easy Scan hardware and software have copyrights to them! We WILL prosecute any person(s) that we find making illegal copies of either! If you see the Easy Scan software on a BBS (or plans to make the hardware), please notify us (with a password, if required), and we will reward you, accordingly! Your name will be kept confidential.

\* Where to call or write \*

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\* Introduction \*

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 Congratulations, on your purchase of this unique and innovative product! The hardware utilized in this product represents the latest technology for computers - Fiber Optics! With this product, you can now take any graphics image, insert it in your printer, then "scan" it into the computer. Notice how the two fiber optics cables coming from the cartridge are actually terminated into a single, open end. This open end is the transmitter and receiver sensor, to be mounted on the printer's head. The Easy Scan software included in this package was made so that it's operation should be simple to use. Because this software uses extra memory as a holding cell for scanning, you MUST have a minimum of 128k of ram in your computer, like the 130XE. An upgraded XL (256k), a 320k 130XE, or 576k 130XE will work also. Note: This product has been tested to work with the following printers: Epson MX-80 (with buffer board) Epson FX-80, Gemeni/Star - 10X, SG-10, NX-10, and Panasonic models 1080/1090/1091 (including i/III models). Other printers with graphic capabilities should work also.

## \* Set-up \*

First, make a backup copy of the Easy Scan software, and use the "copy", as your working disk. Since Easy Scan uses the print head only for movement to scan, it is recommended you remove it's ribbon. Next, insert the alignment template (with circles) in printer. Scanning is easier, using friction feed, but if your printer has only tractor feed, then any image (including template), will have to be taped to tractor feed paper.

Find a good spot on top of your printers head, for mounting fiber optics end. Using regular transparent tape, mount the fiber optics end (sensor), so that it rests securely, between 1/16th and 1/8th of an inch, from the alignment template. Position the template, so that a circle is about 1/2 inch below the fiber optics. Note: The reason we didn't make a cable bracket, is because of the different sizes of printer heads. With computer off, insert the Easy Scan cartridge firmly into the cartridge slot on computer, with the label facing you. Insert the Easy Scan disk in drive #1, then turn on computer. Do NOT hold the option key, as the software was written in BASIC.

The Easy Scan software automatically loads to it's menu. Note: If your computer goes to the "Self-Test" menu, then the cartridge is not making good contact! If so, turn the computer off, and reposition the cartridge, and try again. Once the Easy Scan menu appears, use menu item "N" (New Scan), to scan the template's circle. Once the circle appears fully on the screen, you can hold down the space-bar key, to stop scanning. If the circle appears distorted on the screen, then try one or more of, the following adjustments; 1) Move the fiber optics a bit closer to the template, 2) Adjust the Margin (M), to set the starting point of scan (try 100 first), so that the sensor travels near the edge of the paper, then 3) Adjust the Width (W), which works as a an adjustment, to compensate for the different speeds of printers. Re-scan the circle making adjustments, until it shows the circle as true (round) as possible. Once the circle is clear, Save the configurations (S) to your working disk. Carefully remove the template and store away for future use. You are now ready to scan other images!

## \* Easy Scan Menu \*

G - Graphic Mode - Selects the BASIC graphics mode, you wish to have your image displayed in, either 8 or 15 (15 sometimes referred as 7 1/2). Graphics mode 8 has the highest resolution of 320 x 192, but only has 2 colors (including background). Graphics mode 15 has a resolution of 160 x 192, and uses 4 colors (including background), and is the mode you probably will use the most.

R - Resolution - Sets the vertical height, for the image you wish to scan. Ranges 1-3. A value of "1" scans about a 3 inch height, a "2" about 5 inches, and a value of "3" about 8 inches. Note: For each setting (1-3), the values for margin and width are changed, and can be adjusted by the user. These parameters for each resolution setting are independent, and are saved as such, in the configuration file.

M - Margin Value - Determines the starting point (left margin) where you want to start scanning. Ranges 1-255. A 1 would be the farthest left, and 255 the farthest right.

W - Width Value - Determines the horizontal resolution of scan, and used to offset the different print speeds of printers. Ranges 1-255.

L - Levels 1 to 3 - Represent the "cut off" (threshold) of the scan values, for the 4 different colors. Think of them, as being in between the Colors, and telling the computer what scan values to look for, to see a particular color. If, for example you have Level 1 set to a value of 50, then any "scan" value up to 50, will be interpreted as color 1. If Level 2 is set to 75, then any "scan" value in the range of 51-75, will be utilized as color 2. Any scan value above the value set as Level 3 will be interpreted to be used as color 4. The value in Level's 1-4, can range from 1-255. Note: Levels 2 and 3 have no effect in Graphics mode 8, since it is limited to only 2 colors.

C - Colors 1 to 4 - Represent the actual colors (including background) you wish to have displayed on the screen, and can be in the range of 0-255. Note: Graphics mode 8 uses only 2 colors (including background), being 1 and 3 (2 and 4 have no effect in this mode). There are 16 main colors in 8 shades, yielding 128 total (even numbers, from 0-255). See the Color Chart at the end of this manual.

Scan - (not a menu selection) - Represents the actual "scan" value, picked up by the fiber optics, for a particular location, on an image you are using. The scan value can be in the range of 1-255, and is the value that is seen by the Level function.

D - Display - Used to display the current picture to the screen. While a picture is displayed, you have the following 3 options (not shown on screen) available to you; 1) Press the space bar to return to the menu, 2) Press the "P" key to print the picture on your printer (assuming you have a ribbon and paper loaded), and 3) Adjusting the Colors of the screen by pressing the "C" key, then a number ranging from 1 to 4. Then, you can adjust the screen colors by using the left & right arrow keys for Color (16 variations) and the up & down arrow keys for Hue (16 variations).

N - New Scan - Used to "scan" an image from the printer to the screen. Because the fiber optics is actually "scanning" only one way (from left to right), it takes a considerable amount of time, to fill the screen.

F - File Options - This is actually a function to get to a sub-menu. See the next section, for it's features.

P - Printer Model - (Inactive at this point - reserved).

S - Save Config - Used to save the current configurations, to the 1 sector file called "CONFIG.SCN" to drive #1. All current values of; Graphic mode, Resolution (all 3 sets), Margin, Width, Levels 1-3, Colors 1-4, and also the printer type (inactive for now) from Printer menu, will be saved to this little file, and will load automatically on each boot-up.

T - Test Video - Used to adjust your display, by adjusting your tv or monitor, by using the color, tint, brightness, and contrast controls, until the text on the screen, is the same color as it's background (light orange).

#### \* File Options Menu \*

S - Save D1:RAW.DAT, 492 sectors - Which will save the current image to a file called "RAW.DAT" to your drive #1. Note, that this type of file is 492 sectors long! Be sure to use a formatted disk, for each original image you wish to save in this format, to prevent from over-writing a previous one. The main advantages of using the type of file, is that it saves all data about each individual pixel, where as other types (including 62 sector), lose some of their original form, due to compression techniques.

L - Load D1:RAW.DAT, 492 sectors - Which loads the "RAW.DAT" file (492 sectors long) from drive #1.

K - Keep a Pic file, 62 sectors - Saves the current image into a standard 62 sector, Micropainter type file. Note: Once saved in this format, this is no current way to convert it back to a "RAW.DAT" type file, for use with EASY SCAN (a utility like this is planned). The main advantage of this type of file, is that there are many Micropainter type utilities available. When saving this type of file, be sure to type in the full filespecs. Example: To save the current image, as a 62 sector file called "TIGER.PIC" on drive # 2, you type "D2:TIGER.PIC", at the prompt.

D - Directory - Allows you to do a disk directory of drives 1 to 8, listing the current files of a particular disk. Note that drive 8 is the 499 sector ramdisk, used as a holding cell, for the 492 sector images you scan.

F - Format Disk - For formatting a disk in drives 1-7 (S/D).

## \* Notes \*

Even though the Easy Scan is very simple to use, quality picture scans will come after some practice. Once you are familiar with the adjustments (margin, width, colors, etc.), it will be a snap for you to scan just about any graphics image. And, by adjusting the Margin and Width settings, you can make a picture smaller or larger on the screen, than it's actual size. If you wish to use a photograph, it would be best to have the picture photo-copied, then scan the photocopy. If either (or both) of the fiber optics cables become loose from the cartridge, loosen the plastic tightening bolt, insert the fiber optics cable (all the way), then tighten the plastic bolt. If any of the components of this product become damaged (cartridge, cables, software, etc.) replacements are available. Call or write for more information (addresses and phone numbers below).

## \* Acknowledgements \*

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Sector One Computers, is owned and operated by Jim Steinbrechner, the originator of Amodem and other fine terminal programs. Jim also operates the ARCADE BBS (phone # 313-978-8087), which runs at 300 & 1200 bps, and plans on adding a section for registered owners of Easy Scan, for messages, utilities, and up-to-date information.

Innovative Concepts (I.C.) is owned and operated by; Mark Elliott and Ron Florka. We welcome any suggestions for improvements or new products. Call or write for our latest catalog, listing many other fine products. Dealer, Distributor, and User Group inquiries welcome!

## Color Chart

0 - 15 = Shades of Gray	* 128 - 143 = Shades of Blue
16 - 31 = Shades of Gold	* 144 - 159 = Shades of Light Blue
32 - 47 = Shades of Orange	* 160 - 175 = Shades of Turquoise
48 - 63 = Shades of Red-Orange	* 176 - 191 = Shades of Green-Blue
64 - 79 = Shades of Pink	* 192 - 207 = Shades of Green-Green
80 - 95 = Shades of Purple	* 208 - 223 = Shades of Yellow
96 - 111 = Shades of Red-Orange	* 224 - 239 = Shades of Orange-Green
112 - 127 = Shades of Blue	* 240 - 255 = Shades of Light Orange

Remember, since we are using total 128 colors, only the even numbers are used by the Easy Scan software. A simple BASIC program for displaying these, is listed below.

```

10 REM SHOW 128 COLORS
20 REM 8 COLORS * 16 LUMINANCES
30 FOR COLOR = 0 TO 15
40 FOR LUMINANCE = 0 TO 14 STEP 2
50 SETCOLOR 2, COLOR, LUMINANCE
60 PRINT "COLOR=";COLOR;" LUMINANCE=";LUMINANCE
70 FOR PAUSE=1 TO 500:NEXT PAUSE
80 NEXT LUMINANCE
90 NEXT COLOR

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## Final Note

As an added BONUS, we have include a public domain, Micropainter type program, with conversion utilities on side B, of the Easy Scan Disk. We now include our Demo Disk, free, full of "scanned" pictures!